

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-7 (canceled)

1 8 (currently amended): A method for identifying a compound that modulates
2 cellular proliferation or chemosensitivity, the method comprising the steps of[[:]]
3 (i) contacting the compound with a meiotic recombination 11 (MRE11)
4 polypeptide wherein the polypeptide has at least 95% amino acid sequence identity to SEQ ID
5 NO:2 and has nuclease activity[[:]] and determining a functional effect of said compound by
6 measuring nuclease activity of the MRE11 polypeptide,
7 (ii) ~~determining a functional effect of the compound upon the MRE11~~
8 ~~polypeptide; and~~
9 (iii) ~~determining the chemical or phenotypic effect of the compound upon a cell~~
10 ~~comprising an MRE11 polypeptide, thereby identifying a wherein an effect of said compound on~~
11 the nuclease activity of said MRE11 polypeptide indicates that said compound that modulates
12 cellular proliferation or chemosensitivity.

1 9-13 (canceled)

1 14 (previously presented): The method of claim 8, wherein the MRE11
2 polypeptide is expressed in a eukaryotic host cell.

1 15-22 (canceled)

1 23 (original): The method of claim 8, wherein modulation is inhibition of
2 cellular proliferation.

1 24 (original): The method of claim 8, wherein modulation is inhibition of cancer
2 cell proliferation.

1 25 (original): The method of claim 8, wherein modulation is activating
2 sensitivity to chemotherapeutic reagents.

1 26 (original): The method of claim 8, wherein modulation is activating
2 sensitivity of cancer cells to chemotherapeutic reagents.

1 27 (original): The method of claim 14, wherein the host cell is a cancer cell.

1 28 (original): The method of claim 27, wherein the cancer cell is a breast,
2 prostate, colon, or lung cancer cell.

1 29 (original): The method of claim 27, wherein the cancer cell is a transformed
2 cell line.

1 30 (original): The method of claim 29, wherein the transformed cell line is PC3,
2 HI299, MDA-MB-231, MCF7, A549, or HeLa.

1 31 (previously presented): The method of claim 27, wherein the cancer cell is a
2 p53 null or mutant cell.

1 32 (previously presented): The method of claim 27, wherein the cancer cell is a
2 p53 wild-type cell.

1 33 (original): The method of claim 27, wherein the cancer cell is treated with
2 bleomycin or etoposide.

1 34 (original): The method of claim 8, wherein the polypeptide is recombinant.

1 35 (original): The method of claim 8, wherein the polypeptide is encoded by a
2 nucleic acid having a sequence of SEQ ID NO:1.

1 36 (original): The method of claim 8, wherein the compound is an antibody.

1 37 (original): The method of claim 8, wherein the compound is an antisense
2 molecule.

1 38 (original): The method of claim 8, wherein the compound is a small organic
2 molecule.

1 39 (original): The method of claim 8, wherein the compound is a peptide.

1 40 (original): The method of claim 39, wherein the peptide is circular.

41-52 (canceled)

1 53 (previously presented): The method of claim 8, wherein the MRE11
2 polypeptide has an amino acid sequence of SEQ ID NO:2.

1 54 (previously presented): The method of claim 8, wherein the MRE11
2 polypeptide is encoded by a nucleic acid sequence having at least 95% nucleic acid sequence
3 identity to SEQ ID NO:1.